

REMARKS

Claims 1 - 33 are pending. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claims 1 and 20 were objected to due to informalities. Particularly, the examiner has objected to the language: “a filter function arranged to decrease signals outside a second bandwidth...” and has suggested change to, for example, “greater than and less than.” The applicants have accordingly amended claims 1 and 20 to adopt the examiner’s suggestion. Therefore, the objection to claims 1 and 20 should be withdrawn.

Claim 28 was objected to due to informalities. Particularly, the examiner has requested that the word “method” be deleted. The applicants have accordingly amended claim 28 to delete the word “method.” Therefore, the objection to claim 28 should be withdrawn.

Claims 1 - 3 and 5 - 33 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,016,242 to Tang. The applicants respectfully request that this rejection be withdrawn for the following reasons.

Claims 1 and 12 recite the novel embodiment disclosed, for example, on paragraphs [0021] - [0028] of a method of or apparatus for generating an output signal 204 comprising a first bandwidth from a plurality of input signals 206 comprising bandwidths less than the first bandwidth. A filter function is defined and arranged to decrease signals greater than or less than a second bandwidth, the second bandwidth being less than the first bandwidth. Input signals comprising a third bandwidth that is a multiple of the second bandwidth are replicated to generate a number of replicated signals corresponding to the multiple, and the replicated signals are filtered according to the filter function to generate filtered signals. The output signal is generated in response to the filtered signals.

For example, a 1000 Mhz (first bandwidth) output signal is generated by a plurality of 100 Mhz, 200 Mhz and 300 Mhz input signals. Filters 208 decrease signals greater than or less than a 100 Mhz (second bandwidth). A 1:3 power divider 220 replicates the 300 Mhz input signal, which has a third bandwidth (300 Mhz) that is a multiple (3) of the second bandwidth to generate a number of replicated signals (three) corresponding to the multiple. The replicated signals are filtered by the filters 208 according to the filter function to generate filtered signals.

Tan discloses a method for generating a large number of stable microwave frequency components for a wideband lightwave distribution network 15. The network 15 includes a 4-way power divider 20 for receiving a spectrum of harmonics from 100 MHz to 7 GHz. The 4-way power divider 20 divides and distributes the power of the harmonic spectrum among four output channels 22, 23, 24, and 25. Channel 22 is input to 2-way power divider 21; channel 23 is input to block 42 of narrowband filters; channel 24 is input to block 43 of narrowband filters; and channel 25 is input to block 44 of narrowband filters. Each of the four output channels 22, 23, 24, and 25 carries the spectrum of harmonics from 100 MHz to 7 GHz. (See Col. 4, Lines 42 - 43).

However, Tan fails to disclose defining a filter function arranged to decrease signals greater than or less than a second bandwidth, the second bandwidth being less than the first bandwidth (which is the bandwidth of the output signal). The examiner has asserted that the 4-way power divider 20 and the narrow band filters 40 - 44 connected to the 4-way power divider 20 shown in Fig. 2 disclose this limitation. The applicants respectfully disagree with this assertion, as Tan discloses that each channel output from the 4-way power divider 20 carries the spectrum of harmonics from 100 MHz to 7 GHz (see col. 4, lines 42 - 43), and that the narrowband filters are centered at frequencies such as 1.9 GHz, 2.1 GHz, 2.3 GHz, 2.5 GHz, 2.7

GHz, 2.9 GHz, 3.1 GHz, 3.3 GHz...5.9 GHz. That is, Tan does not disclose that the bandwidth of the narrowband filters is a bandwidth that is less than the bandwidth of the output signal.

Tan also fails to disclose replicating the input signals comprising a third bandwidth that is a multiple of the second bandwidth to generate a number of replicated signals corresponding to the multiple. The examiner has asserted that the two-way power divider 21 shown in Fig. 2 discloses this limitation. The applicants respectfully disagree with this assertion, as Tan merely discloses that the two-way power divider 21 halves the spectrum power from input channel 22. Tan does not disclose that the two-way power divider 21 replicates the signal from input channel 22 to have a bandwidth that is a multiple of the bandwidth of the narrowband filters.

Further, the input signals from the 4-way power divider also are not replicated to comprise a third bandwidth that is a multiple of the bandwidth of the filters to generate a number of replicated signals corresponding to the multiple. As discussed above, Tan discloses that each channel output from the 4-way power divider carries the spectrum of harmonics from 100 MHz to 7 GHz (see col. 4, lines 42 - 43), which is exactly the same as the spectrum of the input to the 4-way power divider.

Tan also fails to disclose generating an output signal in response to the filtered signals, wherein the output signal comprises a first bandwidth from a plurality of input signals comprising bandwidths less than the first bandwidth. Although this limitation is recited in the preamble, the examiner must consider the preamble where, as here, it provides life, meaning and vitality to the claim. See MPEP 2111.02. See also *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999) ("If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be

construed as if in the balance of the claim"); *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329, 1333, 68 USPQ2d 1154, 1158 (Fed. Cir. 2003) (in considering the effect of the preamble in a claim directed to a method of treating or preventing pernicious anemia in humans by administering a certain vitamin preparation to "a human in need thereof," the court held that the claims' recitation of a patient or a human "in need" gives life and meaning to the preamble's statement of purpose).

The examiner has asserted that the multiplexer shown in Fig. 3 discloses this limitation. However, Tan discloses that the output signal carries twenty-one digital channels spaced at 200 MHz intervals from 1.9 GHz to 5.9 GHz, thus a bandwidth of 4 GHz. (See Col. 6, Lines 3 - 9). As discussed above, the channel output from the 4-way power divider carries the spectrum of harmonics from 100 MHz to 7 GHz, which is a bandwidth of over 6 GHz. (see col. 4, lines 42 - 43). Thus, the output signal does not have a first bandwidth from a plurality of input signals comprising bandwidths less than the first bandwidth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). As discussed above, Tan fails to disclose defining a filter function arranged to decrease signals greater than or less than a second bandwidth, the second bandwidth being less than the first bandwidth (which is the bandwidth of the output signal), replicating the input signals comprising a third bandwidth that is a multiple of the second bandwidth to generate a number of replicated signals corresponding to the multiple, and generating an output signal in response to

the filtered signals, wherein the output signal comprises a first bandwidth from a plurality of input signals comprising bandwidths less than the first bandwidth. Accordingly, the rejection of claims 1 and 12 under 35 U.S.C. 102(b) should be withdrawn.

Claims 2 – 3 and 5 – 11 depend from claim 1. Claims 13 – 19 depend from claim 12. Therefore, the rejection of these claims should be withdrawn for at least the above-mentioned reasons with respect to claims 1 and 12.

Claims 20 and 27 recite the novel embodiment disclosed, for example, on paragraphs [0031] - [0036] of a method of or apparatus for generating a plurality of output signals 314, 315 each comprising first bandwidth in response to an input signal 302 comprising a second bandwidth that is a multiple of the first bandwidth. A filter function is defined and arranged to decrease signals greater than or less than the first bandwidth. The input signal is replicated into a number of replicated signals corresponding to the multiple. The replicated signals are filtered according to the filter function to generate the output signals.

The applicants note that the examiner has not even addressed how Tan discloses these limitations. The examiner has merely stated that Tan discloses the limitations of claims 20 and 27, while only particularly addressing the limitations of claims 1 and 12.

Tan fails to disclose generating a plurality of output signals 314, 315 each comprising first bandwidth in response to an input signal 302 comprising a second bandwidth that is a multiple of the first bandwidth and replicating the input signal into a number of replicated signals corresponding to the multiple.

Rather, Tan only discloses a 4-way power divider 20 that divides and distributes the power of a spectrum of harmonics from 100 MHz to 7 GHz among four output channels 22, 23, 24, and 25, each of which carries the spectrum of harmonics from 100 MHz to 7 GHz. (See Col.

4, Lines 42 - 43). That is, the bandwidth of the outputs is not a multiple (4) of the bandwidth of the input signal. Accordingly, the rejection of claims 20 and 27 under 35 U.S.C. 102(b) should be withdrawn.

Claims 21 – 26 depend from claim 1 and claims 28 – 33 depend from claim 27.

Therefore, the rejection of these claims should be withdrawn for at least the above-mentioned reasons with respect to claims 20 and 27.

Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Tang. Claim 4 depends from claim 1. Therefore, the rejection of claim 1 should be withdrawn for at least the above-mentioned reasons with respect to claim 1.

New claims 34 - 36 are presented for examination. These claims recite features that further distinguish the present invention from the cited art. Support for new claims 34 and 36 can be found on, for example, paragraphs [0017] - [0019]. Support for new claim 35 can be found on, for example, paragraph [0003].

New claim 34 further limits the method of claim 1 to recite that each of the plurality of input signals comprises a last mile return input signal, and the output signal comprises a composite signal. In comparison, Tang (Fig. 2) only discloses input signals that are harmonics of an input signal generated by the comb generator.

New claim 35 further limits the apparatus of claim 12 to recite that each of the plurality of input signals comprises a satellite uplink signal, and the output signal comprises a satellite composite downlink signal. In comparison, Tang only discloses a subcarrier generation for fiber optic systems.

New claim 36 recites a communication system including the multiplexer apparatus recited in claim 12 and also a demultiplexer apparatus. Tang does not disclose a demultiplexer apparatus, and also does not disclose the limitations recited in claim 12 as discussed above.

In view of the foregoing, the applicants submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

If there are any problems with the payment of fees, please charge any underpayments and credit any overpayments to Deposit Account No. 50-1147.

Respectfully submitted,


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